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INTERNATIONAL PRELIMINARY EXAMINATION REPORT RECEIVED (PCT Article 36 and Rule 70)

13 SEP 2004

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Applicant's or agent's file reference J1572HO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/33396	International filing date (<i>day/month/year</i>) 21.10.2003	Priority date (<i>day/month/year</i>) 25.10.2002
International Patent Classification (IPC) or both national classification and IPC C11D3/37		
Applicant JOHNSON DIVERSEY, INC. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
 - ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 24.05.2004	Date of completion of this report 10.09.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Pentek, E Telephone No. +49 89 2399-8489 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/33396**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-34 as originally filed

Claims, Numbers

1-9 received on 24.05.2004 with letter of 24.05.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
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International application No. **PCT/US 03/33396**

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-9
	No: Claims	
Inventive step (IS)	Yes: Claims	1-9
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

see separate sheet

ITEM V:

1. None of the documents cited in the search report discloses an aqueous detergent composition comprising a polyetheramide-modified organopolysiloxane, a surfactant and a chelating agent.

Therefore, the claimed subject-matter is novel over said prior art.

2. The claimed subject-matter appears to be inventive as none of said documents suggests the use in a detergent composition of a polyetheramide-modified organopolysiloxane compound for providing anti-soiling benefits to hard surfaces. Document US-B-6 221 833 (D1) relates to an aqueous composition comprising silicon oils and amino-functional organopolysiloxane-containing fluid, an emulsifier, nonionic and anionic surfactants and one or more solvents for the cleaning and polishing leather, vinyl, plastic, rubber and other similar surfaces. EP-A-0 353 388 (D2) is concerned with floor treatment (cleaning, polishing, protecting) products comprising at least one amino-functional polysiloxane, a surfactant and a polycarboxylic chelating agent.

US-A-4 859 359 (D3) teaches a solvent-based liquid cleaning and polishing composition, suitable for use on hard surfaces, said composition comprising an amino-functional organic polysiloxane. No surfactant is present in said composition.

US-B-6 425 959 (D4) refers to organic compositions effective in removing complex organic soils from wood, metal, and other hard surfaces, said compositions comprising nonionic surfactants, chelating agents and silicone surfactants having alkylene oxide groups grafted on the silicone backbone.

Therefore, the present invention represents an alternative to the known compositions by using a polyetheramide-modified organopolysiloxane in compositions for cleaning hard surfaces. There is no hint to a skilled person to modify the prior art, that is replacing the amino-functional polysiloxane or alkylene oxide groups-containing silicone surfactant by a polyetheramide-modified organopolysiloxane in order to provide effective cleaning and anti-soiling effect to hard surfaces.

Therefore, the claimed compositions are considered to involve an inventive step over said prior art.

CLAIMS

1. An anti-soiling detergent composition, containing:
 - (A) 0.05 to 10 mass% of a polyetheramide-modified organopolysiloxane;
 - (B) 0.1 to 30 mass% of at least one type of surfactant selected from nonionic
 - 5 surfactants, amphoteric surfactants, and cationic surfactants;
 - (C) 0.1 to 20 mass% of a metal chelating agent; and
 - (D) water.

2. The anti-soiling detergent composition according to claim 1, containing
- (E) 0.01 to 5 mass% of a thickener in addition to components (A) to (D).

- 10 3. The anti-soiling detergent composition according to claim 1 or 2, containing
- (F) 0.1 to 20 mass% of a water-soluble solvent in addition to the above components.

4. The anti-soiling detergent composition according to any of claims 1 to 3, wherein the polyetheramide-modified organopolysiloxane of component (A) is a polyetheramide-modified organopolysiloxane expressed by average compositional formula

(1)



(where a and d are zeros or positive numbers; b and c are positive numbers such that $1.9 \leq a + b + c + d \leq 2.2$; R^1 is a hydrogen atom, a hydroxyl group, or a substituted or unsubstituted monovalent hydrocarbon group with 1 to 6 carbon atoms; R^2 is a monovalent hydrocarbon

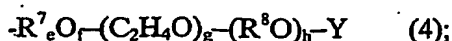
20 group with 1 to 6 carbon atoms; Q^1 is a group expressed by general formula (2) or (3)

[Chemical Formula 1]

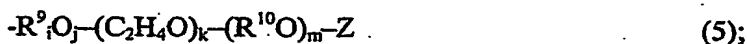


R^3 and R^5 are divalent hydrocarbon groups with 2 to 18 carbon atoms; R^4 and R^6 are hydrogen atoms or monovalent hydrocarbon groups with 1 to 6 carbon atoms; X is a group

25 expressed by general formula (4)

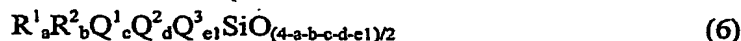


e and f are each 0 or 1; g and h are zeros or positive integers of 1 or greater; R^7 is a divalent hydrocarbon group with 2 to 18 carbon atoms; R^8 is a divalent hydrocarbon group with 3 to 10 carbon atoms; Y is a hydrogen atom, a monovalent hydrocarbon group with 1 to 18 carbon atoms, an acyl group, or an isocyanic acid group; Q^2 is a group expressed by general formula (5)



i and j are each 0 or 1; k is a positive integer of 1 or greater; m is zero or a positive integer of 1 or greater; R^9 is a divalent hydrocarbon group with 2 to 18 carbon atoms; R^{10} is a divalent hydrocarbon group with 3 to 10 carbon atoms; and Z is a hydrogen atom, a monovalent hydrocarbon group with 1 to 18 carbon atoms, an acyl group, or an isocyanic acid group; however d and g cannot both be zero at the same time).

5. The anti-soiling detergent composition according to any of claims 1 to 3, wherein the polyetheramide-modified organopolysiloxane of component (A) is a polyetheramide-modified organopolysiloxane expressed by average compositional formula (6)



(where a and d are zeros or positive numbers; b , c , and e are positive numbers such that $1.9 \leq a + b + c + d + e \leq 2.2$; R^1 is a hydrogen atom, a hydroxyl group, or a substituted or unsubstituted monovalent hydrocarbon group with 1 to 6 carbon atoms; R^2 is a monovalent hydrocarbon group with 1 to 6 carbon atoms; Q^1 is a group expressed by general formula (2) or (3)

[Chemical Formula 2]

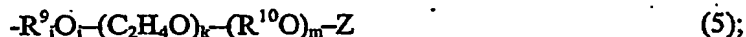


R^3 and R^5 are divalent hydrocarbon groups with 2 to 18 carbon atoms; R^4 and R^6 are hydrogen atoms or monovalent hydrocarbon groups with 1 to 6 carbon atoms; X is a group expressed by general formula (4)



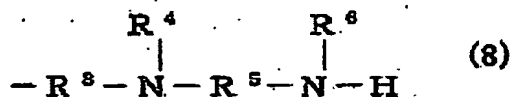
e and f are each 0 or 1; g and h are zeros or positive integers of 1 or greater; R^7 is a divalent hydrocarbon group with 2 to 18 carbon atoms; R^8 is a divalent hydrocarbon group with 3 to 10 carbon atoms; Y is a hydrogen atom, a monovalent hydrocarbon group with 1 to 18 carbon atoms, an acyl group, or an isocyanic acid group; Q^2 is a group expressed by general

5 formula (5)



i and j are each 0 or 1; k is a positive integer of 1 or greater; m is zero or a positive integer of 1 or greater; R^9 is a divalent hydrocarbon group with 2 to 18 carbon atoms; R^{10} is a divalent hydrocarbon group with 3 to 10 carbon atoms; and Z is a hydrogen atom, a monovalent hydrocarbon group with 1 to 18 carbon atoms, an acyl group, or an isocyanic acid group; d and g cannot both be zero at the same time; Q^3 is a group expressed by general formula (7) or (8)

[Chemical Formula 3]



15 R^3 and R^5 are divalent hydrocarbon groups with 2 to 18 carbon atoms; and R^4 and R^6 are hydrogen atoms or monovalent hydrocarbon groups with 1 to 6 carbon atoms).

6. The anti-soiling detergent composition according to any of claims 2 to 5, wherein the thickener of component (E) is at least one compound selected from among thickening polysaccharides, carboxyvinyl polymers, crosslinked polyacrylic acids, and salts thereof.

7. The anti-soiling detergent composition according to any of claims 3 to 6, wherein the water-soluble solvent of component (F) is at least one compound selected from among alcohols, glycol ethers, and terpene-based hydrocarbon solvents.

8. The anti-soiling detergent composition according to any of claims 1 to 7, wherein the anti-soiling detergent composition is used in hard-surface applications.

9. The anti-soiling detergent composition according to any of claims 1 to 8, wherein the anti-soiling detergent composition is used in applications involving restrooms, washstands, baths, and other damp locations.